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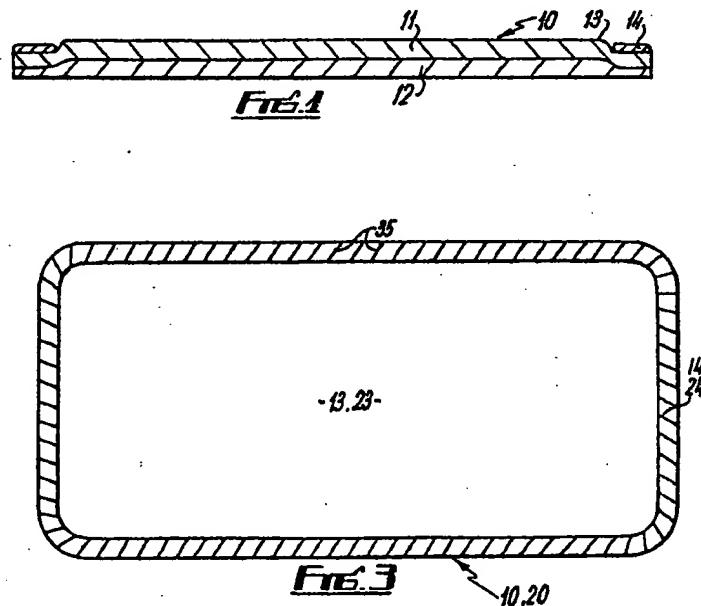
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(54) Method of edging sheet
materials

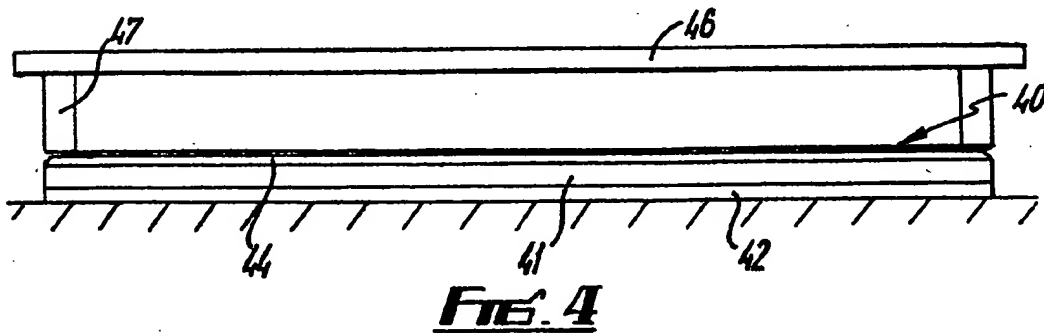
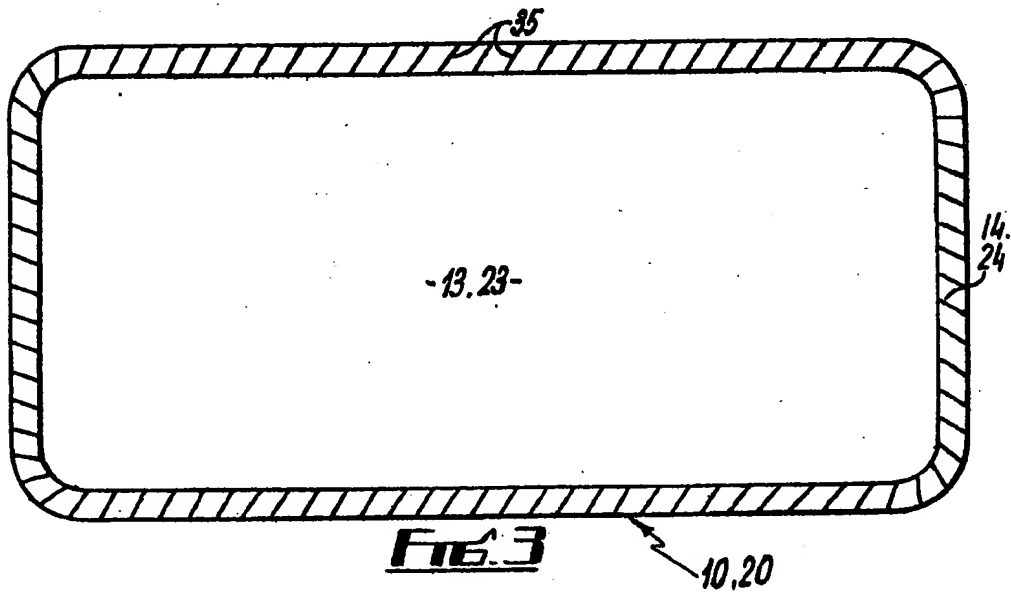
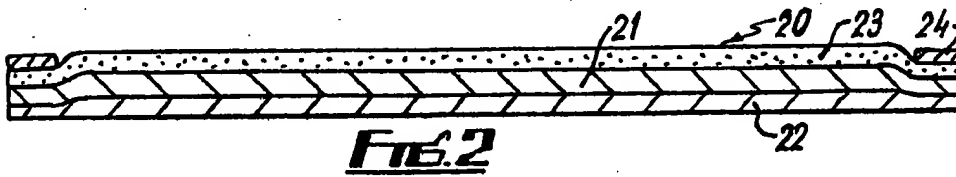
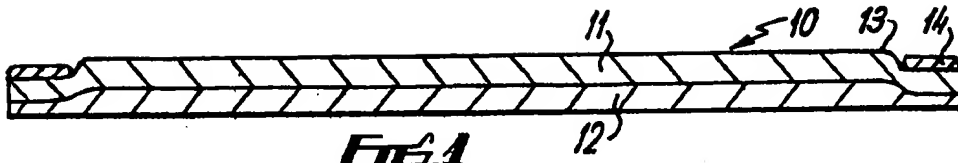
(57) A carpet or wall covering sheet
material is edged to prevent

deterioration of the edges. The edging is effected by laying the sheet material 11 over a backing sheet 12, applying a frame 14 to the upper surface 13 of the sheet material 11 and fusing the frame 14, the sheet material 11 and the backing sheet 12 together. Fusion may be by high frequency induction welding or by extrusion of the frame 14 in situ on the sheet material 11, and at the same time ribs 36 may be formed on the frame 14. The backing sheet 12 and frame 14 are of a thermoplastics material such as P.V.C.



The drawing originally filed was informal and the print here reproduced is taken from a later filed formal copy.

GB 2 103 995 A



SPECIFICATION

Method of edging sheet materials

This invention relates to a method of edging sheet materials so as to prevent or inhibit deterioration, cutting or splitting of the edges thereof. The invention has particular application in the context of floor and wall coverings such as carpets, mats, woven paper fabrics and the like.

Heretofore such coverings have been edged by stitching overedge, or by forming a seam which may be stitched or adhesively bonded. However, such a method of edging can be time consuming and costly.

It is an object of the present invention to provide a method of edge sheet materials which is simple, quick and relatively inexpensive.

The invention provides a method of edging sheet material comprising overlaying said sheet material on a backing sheet of a thermoplastics material, providing a frame, as herein defined, of a thermoplastics material to be disposed at the side of said sheet material remote from said backing sheet, and fusing said frame, sheet material and said backing sheet.

Herein a frame is defined as a strip or band of material extending around the periphery of the sheet material when cut to its desired shape.

The invention also provides an edged sheet material comprising said sheet material in overlying relationship with a backing sheet of thermoplastics material and a frame, as herein defined, of a thermoplastics material disposed at the side of said sheet material remote from said backing sheet, said frame, sheet material and said backing sheet being fused together.

The frame may be cut from a sheet of thermoplastics material and applied to said sheet material, in which case the fusing of the frame, sheet material and backing sheet may be by welding. Such welding may be high frequency electrical induction welding. Alternatively said frame may be formed in situ on said sheet material by extrusion or flow moulding, in which case the fusing of the frame, sheet material and backing sheet may be performed simultaneously with the extrusion or flow moulding of the frame.

A further sheet of thermoplastics material may be disposed between said sheet material and said frame and fused therewith. Preferably said further sheet is transparent, or at least translucent.

Said sheet material and said backing sheet may be cut to a desired shape prior to the overlaying of the former on the latter. Alternatively the frame, sheet material and backing sheet may be cut to a desired shape after fusing thereof.

The backing sheet and frame may be any thermoplastic polymeric material, preferably P.V.C. and the sheet material may be carpet of known type or may be a woven paper fabric. Particularly in the latter case the edged sheet material may include the further transparent or translucent sheet of thermoplastics material.

The invention will now be described with reference to the accompanying drawings in

65 which:—

Fig. 1 is a sectional elevation of one embodiment,

Fig. 2 is a sectional elevation of a second embodiment,

70 Fig. 3 is a plan view of the embodiment of Fig. 1 or Fig. 2 and

Fig. 4 illustrates one method producing the embodiments of Figs. 1 to 3.

Referring now to Fig. 1 there is shown a carpet or mat 10 comprising a carpet fabric 11 of any known form. Applied to the carpet fabric 11 is a backing sheet 12 of a thermoplastic material such as P.V.C. The backing sheet 12 may be applied to the carpet fabric by any known means, for example by adhesive bonding, fusion, needle punching or the like. Around the periphery of the mat or carpet 10, on the upper surface 13 remote from the backing sheet 12, is a frame 14 which is also of a thermoplastic material such as P.V.C. In frame 14, the carpet fabric 11 and the backing sheet 12 are fused together in the peripheral region of the mat or carpet 12 covered by the frame 14.

In the embodiment of Fig. 2 there is shown a mat or covering 20 comprising a fabric 21, which may be a carpet fabric of known form, as in the previous embodiment. However the embodiment of Fig. 2 is particularly suited to the case of a fabric 21 of woven paper. Such fabrics are usually woven from twisted strands of brightly coloured paper. Applied to the opposed faces of fabric 21 is a backing sheet 22 and a covering sheet 23, each of a thermoplastic material such as P.V.C. and the covering sheet 23 preferably being transparent or at least translucent so that the coloured strands of fabric 21 are visible. A frame 24 is applied to the periphery of the mat or covering 20, and the frame 24, the clear covering sheet 23, the fabric 21 and the backing sheet 22 are fused together in the region of frame 24.

Referring now to Fig. 3 there is shown a mat 10 or 20 having a frame 14 or 24 around its periphery. The frame 14, 24 has ribs 35 formed thereon during the fusing step, and provides a neat and decorative edge to the mat 10, 20 such as will prevent or at least inhibit deterioration of the edge of fabric 13 or 23 by wear, tearing, cutting or the like.

Referring now to Fig. 4 there is shown a mat 40 in the course of manufacture. The mat 40 comprises a backing sheet 42, a fabric 41 and a frame 44. A high frequency welding tool 46 is placed above the mat 40 and effects fusion of the thermoplastic materials of the frame 44 and backing sheet 42 to the fabric 41. Pressure may be applied to the mat 40 by the welding tool 46 so as to compress the mat 40 in the region of frame 44 and form ribs thereon as shown at 35 in Fig. 3, and for this purpose the electrodes 47 of tool 46 may be in the form of rollers or separate rollers may be provided adjacent the electrodes 47. In the method shown in Fig. 4 the frame 44 is applied to the fabric 41 in strip form and then fused thereto. As an alternative the material of

frame 44 may be flow moulded onto the fabric 41 such that fusion occurs simultaneously. Again rollers may apply pressure to the frame 44 during the moulding and fusion step.

- 5 Other embodiments of the invention will be readily apparent to persons skilled in the art. For example pressure may be applied to the mats by means of a vertically movable press device instead of by means of rollers. As a further alternative the fusion steps may be effected by passing the mat between heated rollers or by pressure applied by a heated press device. The fabric, backing sheet and frame may be cut to shape prior to being applied to each other or the mat may be cut to shape after the fusion step.

CLAIMS

1. A method of edging sheet material comprising overlaying said sheet material on a backing sheet of a thermoplastics material, providing a frame, as herein defined, of a thermoplastics material, applying said frame to a face of said sheet material remote from said backing sheet and fusing said frame, said sheet material and said backing sheet.
2. A method according to claim 1 wherein said fusing is effected by welding.
3. A method according to claim 2 wherein said welding comprises high frequency electrical induction welding.
4. A method according to claim 1 wherein said frame is formed in situ on said sheet material by extrusion or flow moulding.
5. A method according to claim 4 wherein said fusing of said frame, said sheet material and said backing sheet is performed simultaneously with said forming of said frame on said sheet material.
6. A method according to any one of claims 1 to 5 comprising disposing a further sheet of a thermoplastics material between said sheet material and said frame.
7. A method according to claim 6 wherein said further sheet is at least partially transparent.
8. A method according to any one of claims 1 to 7 comprising cutting said sheet material and said backing sheet to a desired shape prior to overlaying thereof.
9. A method according to any one of claims 1 to 7 comprising cutting said frame, said sheet material and said backing sheet to a desired shape after fusing thereof.
10. A method according to any one of claims 1 to 9 comprising bonding said backing sheet to

said sheet material prior to the application of said frame thereto.

11. A method according to claim 10 wherein said bonding is effected by means of an adhesive.
12. A method according to claim 10 wherein said bonding is effected by fusion.
13. A method according to claim 10 wherein said bonding is effected by needle punching.
14. A method according to any one of claims 1 to 13 comprising forming ribs on said frame during said fusing thereof to said sheet material and backing sheet.
15. A method of edging sheet material substantially as hereinbefore described.
16. An edged sheet material comprising said sheet material in overlying relationship with a backing sheet of a thermoplastics material, and a frame, as herein defined, of a thermoplastics material disposed at a face of said sheet material remote from said backing sheet, said frame, said sheet material and said backing sheet being fused together.
17. An edged sheet according to claim 16 comprising a further sheet of a thermoplastics material which is disposed between said sheet material and said frame.
18. An edged sheet according to claim 17 wherein said further sheet is at least partially transparent.
19. An edged sheet according to any one of claims 16 to 18 wherein said backing sheet is bonded to said sheet material by an adhesive.
20. An edged sheet according to any one of claims 16 to 18 wherein said backing sheet is bonded to said sheet material by needle punching.
21. An edged sheet according to any one of claims 16 to 20 wherein said frame has a plurality of ribs disposed therearound.
22. An edged sheet according to any one of claims 16 to 21 wherein said sheet material comprises a carpet fabric.
23. An edged sheet according to any one of claims 16 to 21 wherein said sheet material comprises a woven paper fabric.
24. An edged sheet material according to any one of claims 16 to 23 wherein said backing sheet is polyvinylchloride.
25. An edged sheet material according to any one of claims 16 to 24 wherein said frame is polyvinylchloride.
26. An edged sheet material substantially as hereinbefore described with reference to and as illustrated in Figs. 1, 2 or 3 of the accompanying drawings.